

# MARINE REVIEW.

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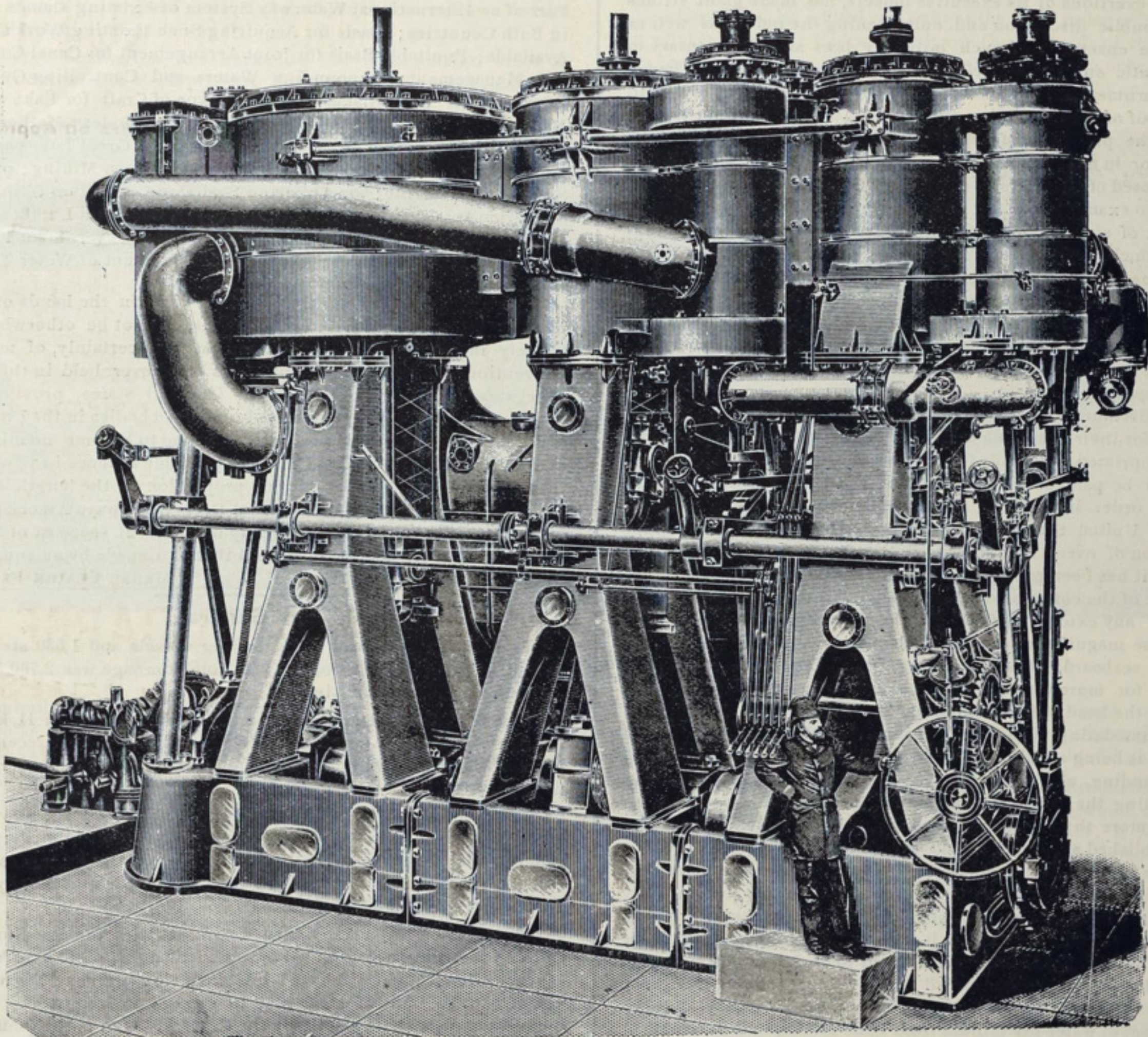
## A Yacht Larger than the North West or North Land.

A yacht just completed at Copenhagen for the emperor of Russia is fitted with twenty-four Belleville water tube boilers, and is altogether a remarkable vessel to be known as a yacht, as she is of greater dimensions and higher power than the lake passenger steamers North West and North Land. The vessel is named Standart and is 370 feet keel, 50 feet 6 inches beam and 36 feet hold, and her displacement is 5,200 tons at 20 feet draft. Space that would be devoted in a passenger steamer to a great number of state rooms is given up in this ship to elegant apartments for the czar and numerous other government officials, and provision is made in addition for a crew of about 400.

Engines of the vessel, which are illustrated herewith, are twin triple expansion with vertical cylinders, having in all two high pressure, two

Length of stroke.....	54 inches
Number of revolutions per minute.....	95 to 100
Working steam pressure, per square inch.....	165 pounds
Crank shaft journals, diameter external and internal.....	17 3/4 inches-8 3/4 inches
Crank shaft bearings, total length for each set of engines.....	10 feet
Crank pins, diameter external and internal....	17 3/4 inches-8 3/4 inches
Crank pins, length.....	19 inches
Propeller shaft, diameter external and internal	18 inches-8 3/4 inches
Main condensers, total cooling surface.....	18,000 square feet

The boilers, which as noted are twenty-four in number, are of Belleville's 1894 model, each boiler having ten elements with ten rows of tubes in each element. Total heating surface, 35,250 square feet; total grate area, 1,116 square feet. The propellers are three-bladed, diameter 16 feet,



ENGINES OF RUSSIAN IMPERIAL YACHT STANDART.

intermediate and two low pressure cylinders, working on two three-throw crank shafts. The high pressure and intermediate cylinders are fitted with piston valves, and the low pressure cylinders with double-ported slide valves. The main crank bearing frames are of cast iron. Each set of engines has one single-acting vertical air pump, worked by a beam from the cylinder crosshead, and one centrifugal circulating pump, worked direct by independent engines. The surface condensers, one for each engine, have brass tubes and tube plates. The steam is condensed on the exterior surfaces of the tubes. Each cylinder is supported on cast iron standards.

### PARTICULARS OF ENGINES.

Diameter of cylinders {	High pressure.....	41 inches
	Intermediate.....	65 inches
	Low pressure .....	105 inches

pitch 25 feet. The engraving of the engines is from the Engineer of London.

McKay Bros., owners of the Canadian steamer St. Magnus, which capsized while being loaded with pig iron in Cleveland harbor, and which was upon survey declared a constructive total loss and abandoned to the underwriters, have made a private settlement with the underwriters. It is understood that the amount paid to the owners of the boat was about 40 per cent. of the insurance, which aggregated some \$27,000. The underwriters are undoubtedly very well satisfied with their bargain, although they would probably have made a claim of negligence in loading of the boat if the matter had gone into court. The wreck will be taken to Port Dalhousie from Cleveland and rebuilt for carrying freight. A new boat is talked of to take the place of the St. Magnus on the Montreal line.



### Cleveland Waterways Convention.

The international convention to be held in Cleveland, September 24, 25 and 26, 1895, will present an interesting if not remarkable spectacle. Representatives of the United States and Canada, countries hitherto generally unfriendly in sentiment, will meet in fraternal effort to promote a common cause for mutual benefit. The central idea is to induce the two governments to co-operate in opening deep ship-channels from the great lakes to the Atlantic.

The International Deep Waterway Association, which is carrying forward this idea, is the outgrowth of the Toronto convention of 1894. Several contending factions were there striving for supremacy—that favoring the all-Canadian and that demanding the all-American route to the sea, arrayed vigorously against those advocating the theory that the vast and increasing commerce of the great lakes could not very long be adequately accommodated by less than two courses to the Atlantic, regardless of international boundaries, practical routes to be developed by authoritative surveys and comparative estimates; the ultimate result being, probably, one channel via Montreal and one via New York, thus satisfying all factions, but details to be worked out later on a basis of exact information. This theory finally prevailed and became the foundation of the permanent international organization, which, through the self-sacrificing exertions of its executive officers, has made giant strides in stirring up public discussion and enlightening the public, as well as in securing the enactment of such initiatory laws as are necessary to bring the gigantic enterprise intelligently and properly into the hands of the two governments. The Vilas amendment to the sundry civil bill, enacted in behalf of the association on March 3, 1895, provides for the appointment by the president, of three persons to act, either as an independent body or in conjunction with or as part of an international commission composed of three from the United States and a like number from Canada, to examine into and report separately or jointly upon the entire problem of ship channels from the great lakes to the sea; what portions of such channels will probably be in the United States and what portions in Canada, and the estimated cost thereof; what treaty regulations—to use the exact language of the bill—"may be required to preserve such canals to the free use of the people of this country at all times; and all necessary facts and considerations relating to the construction and future use of deep-water channels between the great lakes and the Atlantic ocean."

The commissioners must serve without compensation, but \$10,000 was set aside for their traveling and necessary expenses. No specific sum was appropriated in Canada for the use of the commissioners, but their bills will be paid as incurred. The dominion commission was created by an order in council. Its personnel will not be announced until after the United States commissioners shall have been chosen. Canadian action of every kind in this matter has been reciprocal, not initiatory, but it has been prompt, kindly and cordial throughout.

The report of the commission thus created will be the first authentic information of any extent possessed by the government of the United States upon the magnificent project of adequately connecting the great lakes with the seaboard, notwithstanding Canada has been actively engaged upon it for more than a century and now has complete, on her own soil, from the head of Lake Superior to the Gulf of St. Lawrence, a channel accommodating vessels of medium length and tonnage, and which channel is being steadily enlarged to meet modern requirements; and notwithstanding, also, that it is 170 years since Cadwallader Colden began advocating the construction of a canal from the great lakes to tidewater, and more than a century since Robert Fulton, inventor of the steamboat, published a pamphlet to advance the same idea.

At first the international association did not attract much attention. The masses did not understand its aims or the necessity for its existence. But public interest was gradually aroused and the subject is now pretty well understood. Especially is this true since Buffalo, Toledo, Toronto and Cleveland asked the government to make an official examination into the probable effect on all lake levels of opening the great Chicago drainage canal, which will have an ultimate capacity to carry 600,000 cubic feet of water per minute from Lake Michigan into the Mississippi, and since members of the Lake Carriers' Association and several powerful lower lake interests are asking to have the government take up the question of raising and controlling the level of Lake Erie by public works at the entrance to Niagara river for the general benefit of navigation.

If the commerce of the great lakes should be injured by lowering their general levels, as a result of the Chicago or any other canal, or any waterpower works, 90 per cent. of the damage would fall upon the United States, because the lake shipping is mostly American. Thus the United States is interested in the levels, improvements and capacity of the great lakes and all that in any way appertains to them, ten times more than all the rest of the world combined, and can well afford to take the initiative in asking Canada to co-operate in making them of the utmost utility and value to herself and to mankind forever.

Ample means exist for more than compensating for any loss in lake heights that might possibly result from constructing the Chicago or any other great canal rendered necessary by the demands of commerce. It consists in such a natural arrangement of the great lakes, one elevated above the other as the series progresses inland, that their mighty floods may be easily and securely stored, so that all general levels will be raised and all harbors deepened and a considerably enlarged capacity to commerce maintained for all time at very slight expense. But their wide area of waters can not be rightfully impounded, raised or lowered, no matter how extensive and valuable the resulting advantages, without a permanent, satisfactory arrangement with Canada. Hence one, at least, of the clearest necessities for the foundation that is being laid by the International Deep Waterways Association becomes apparent, although it is a mere incident in the broad, general plan that is being wrought out for benefits more vast, more direct and more lasting to a greater portion of the human family than belong to any other similar work upon this footstool.

At the Cleveland convention men of distinguished ability will give addresses on the more important topics, partially as follows:

International Comity and Cooperation; Permanent International Court of Arbitration; Is a Joint Arrangement for Canal Construction and Management Practical and Desirable?; Character, Cost and Utility, as Part of an International Waterway System of Existing Canals and Locks in Both Countries; Basis for Acquiring Such Existing Works as may be Available; Equitable Basis for Joint Arrangement for Canal Construction and Management; Impounding Waters and Controlling Outflow and Levels of the Great Lakes System; Type of Craft for Lake and Ocean Navigation; Pneumatic and Hydraulic Locks; Modern Methods of Canal Excavation; Effect of Deep Water Between the Great Lakes and the Sea on Railway Traffic and Earnings; on Domestic Iron Mining; on Iron and Steel Manufacturing; on Lake and Seaboard Cities; on Ship Building; on Agricultural Interests; on Grain, Flour, Coal and Lumber Business; on the Great Lakes Carrying Trade, etc., etc.; Government Policy as to Home and Foreign Canals; Ultimate Development of Water Transportation.

Such papers, amongst others equally vital, in the hands of the foremost men of both countries in their lines, can not be otherwise than extremely interesting and instructive, capable, certainly, of making the convention the most important of its kind ever held in this country. Delegates are invited to be present from all states, provinces, cities, boards of trade and other interested organized bodies in the United States and Canada; and individuals are welcome to become members of the association. It has been said that the probable advance in power and civilization of a country is in direct proportion to the length of its seacoast. The plan of the International Deep Waterways Association, when carried out, will lengthen the already magnificent seacoast of the United States by more than 2,000 miles and that of Canada by an equal amount.

MABEL CLAIRE FLOWER.

### In General.

In 1892 Germany had 21,318 sailing vessels and 1,530 steamers employed in inland navigation. Their total tonnage was 2,760,553, an increase from 1,658,266 tons in 1882.

The U. S. S. Alert is credited with a mean speed of 11 knots on a six-hours' run at full speed, to which she was subjected recently. This is a pretty good showing for machinery built nearly a quarter of a century ago.

It has been finally decided to build four of the six new gunboats authorized by the last congress with full sails and single screws, and an order to that effect has been issued. They will be known as gunboats Nos. 10, 11, 12 and 13, and the two twin-screw ships, with only fore-and-aft sails, as gunboats Nos. 14 and 15.

The Cramps last week signed a contract with the Reading Railroad Co. for a seagoing tug, intended to tow coal barges. She is to be of steel, 170 feet in length, and will have triple expansion engines. Two other large vessels, to be built of steel and to engage in freight and passenger business, are also being built by the Cramps. One is the Comanche, for the Clyde line, and the other the Curacoa, for Boulton, Bliss & Dallett of New York.

An investigation into the work of American seamen in the merchant service has been taken up by the United States bureau of labor. Agents have been stationed at five principal ports of the country—New York, Boston, Philadelphia, Baltimore and San Francisco—whose business it is to investigate the conditions of the life and service of the common sailors employed in merchant shipping. The terms upon which seamen are employed, the wages paid them, the treatment accorded to them at sea, and, incidentally, the rations and accommodations furnished on shipboard, are being investigated. Particular attention is being paid to the contracts made with seamen and to the custom which largely prevails among ship captains of engaging the services of middlemen to enlist their crews.



### Around the Lakes.

Lake Michigan coal rates will undoubtedly be advanced during the present week.

The tug Logie, 41 by 11 feet, was sold at Toledo Tuesday to Nagel & Hall for \$2,000.

Burger & Burger, Maintowoc, docked the steamer Hart, ashore recently, and will make almost \$1,500 worth of repairs on her.

The West Duluth blast furnace is having slips dredged so that coal, coke and limestone can be received by lake instead of by rail as formerly.

Capt. James Murray, well known contractor of St. Catharines, Ont., died at his home in that place, Tuesday. He built a part of the Welland canal.

E. J. Kendall and Capt. Andrew Bonnah of Port Huron have purchased the tug W. N. Richardson from Strong & Son, Cleveland, for \$2,000, and will use her for harbor towing at Port Huron.

Low water in the Welland, 13½ feet as against the normal stage of 14 feet, is causing vessels to demand higher rates. There is said to be a good demand for export grain via the St. Lawrence route.

Again it is announced that the Duluth, Mesabi & Northern Railway, which is carrying the great bulk of Mesabi ore to Duluth, will construct a new dock, west of the present dock at Duluth, to be in readiness for the opening of navigation next season.

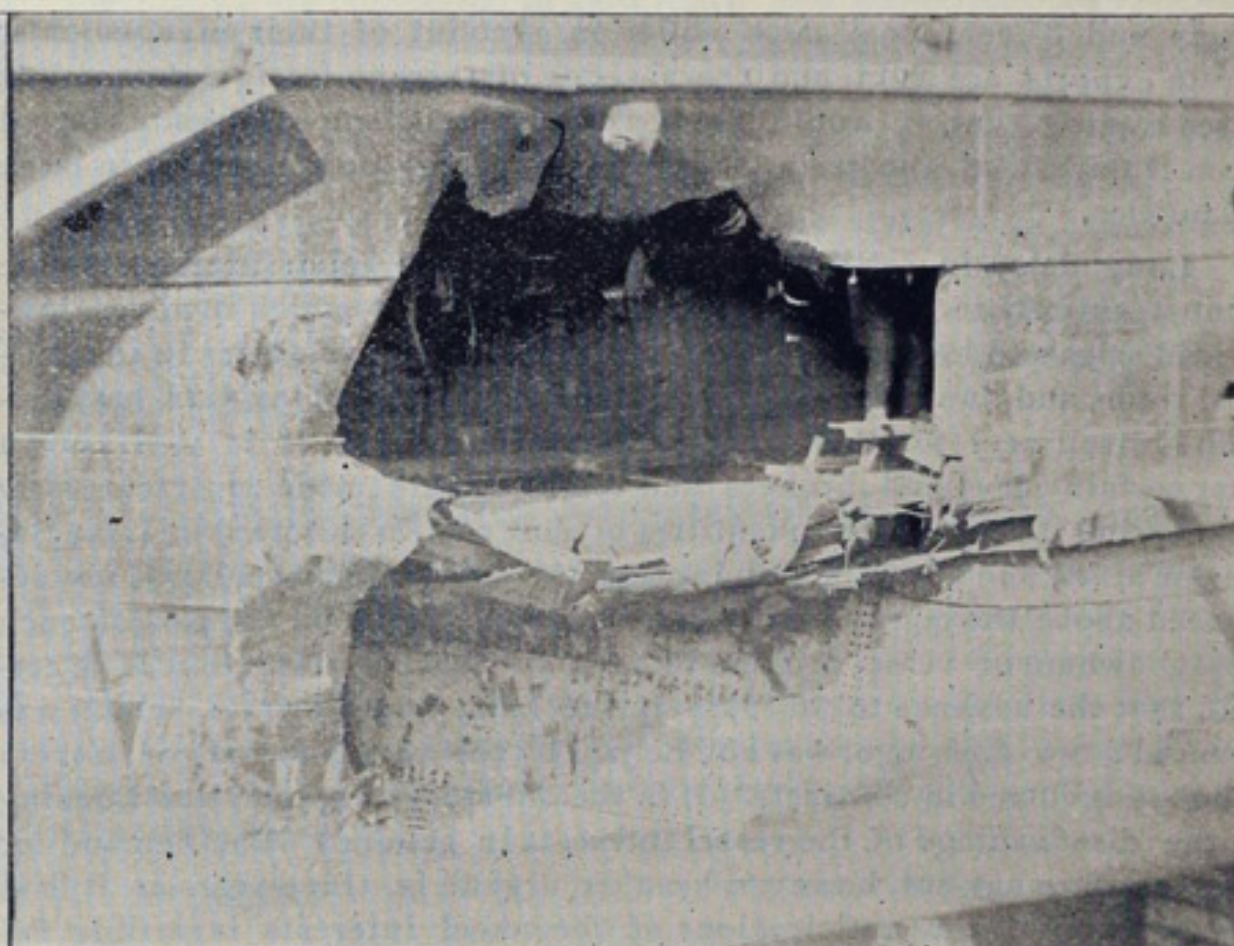
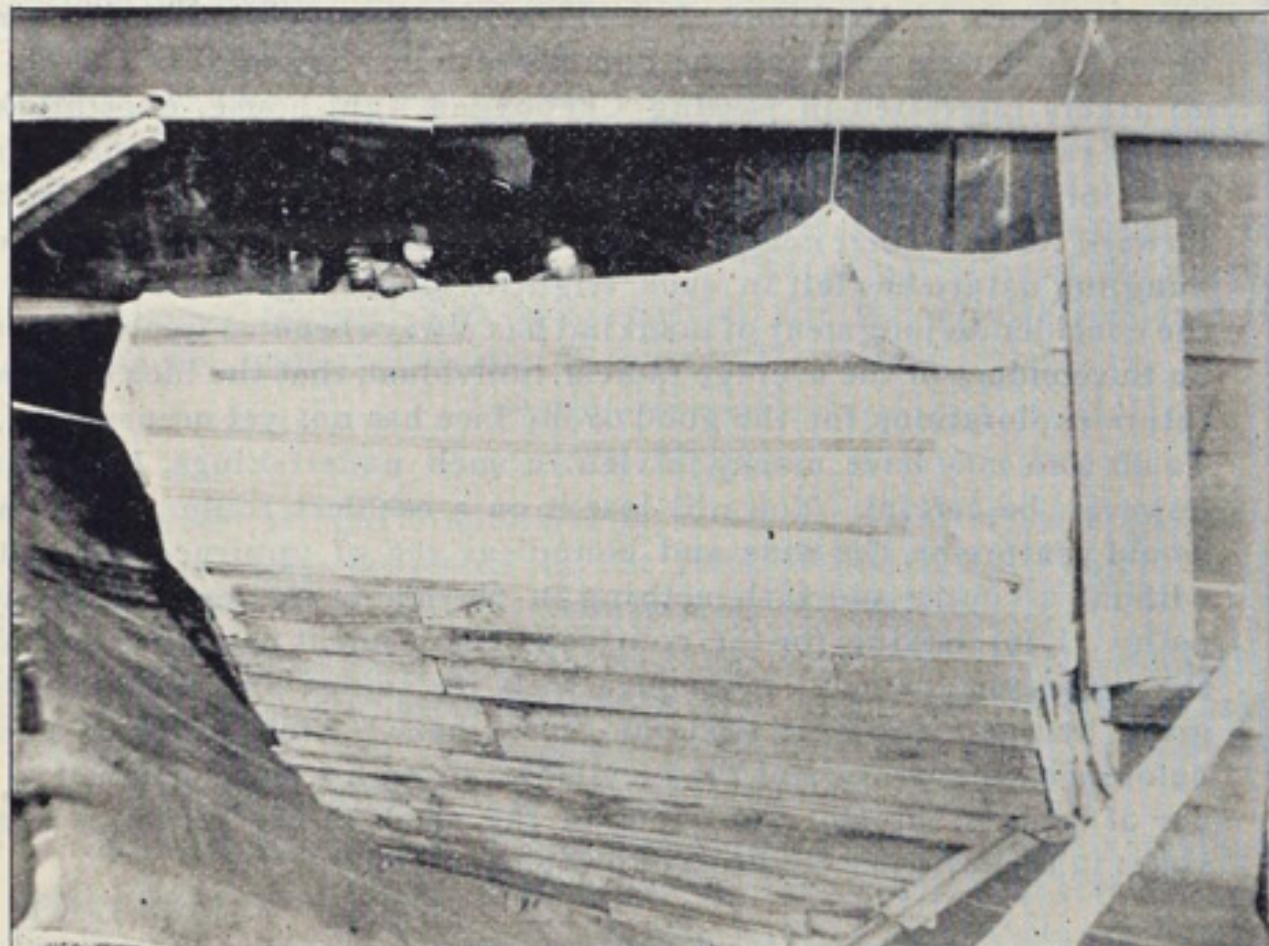
Steambarge Burlington was burned to the water's edge while at anchor at the entrance to Meldrum bay. She burned last year at Sandwich

The Cleveland Ship Building Co. will furnish triple expansion engines and boilers for the steel steamer to be built by the Chicago Ship Building Co. for M. M. Drake of Buffalo, C. W. Elphicke and Arthur Orr of Chicago, and others. The boat will be practically a duplicate of the steamer Chili, of which Capt. Drake is managing owner. She will be 323 feet keel, 345 feet over all, 43 feet beam and 26½ feet deep. Engines will be the same as those in the Chili.

A report that dredging operations now going on at Ashtabula will provide 20 feet draft in that harbor is misleading. Appropriations for government work are sufficient to provide 20 feet of water in the outer harbor, but the city and railway companies owning the docks have yet to appropriate funds for dredging the river and other parts of the inner harbor. It is probable, however, that Ashtabula will be the first of Lake Erie ports to have a harbor of 20 feet throughout.

S. N. Barrigar of Kansas City, in ordering the REVIEW sent to Capt. Lyons of that city, says: "We have a few old lake men here. Capt. Rube Swain, formerly of Cleveland, is among them. Capt. Lyons is also one of the veterans. We took a trip together last summer with Capt. Cowley on steamer Roumania. Years ago I was with Capt. Lyons in the bark P. S. Marsh of Cleveland. He is as much a sailor as ever. His brother, Ralph Lyons, will bring out the big Zenith City shortly."

About Sept. 15, a fixed red light of the sixth order will be established in what is known as Ecorse marsh, on the west side of the Detroit river. On the same date another fixed red light of the sixth order will be established 550 feet northwest of the first mentioned light and about 160 feet



VIEWS OF STARBOARD QUARTER OF STEEL STEAMER ALVA,  
SHOWING HOLE CAUSED BY COLLISION WITH WHALEBACK BARGE AND PATCH APPLIED UNDER WATER;  
(For description see REVIEW of Aug. 22, page 5.)

and was rebuilt by Grant Grummond, who thus became the owner. She was valued at \$12,000 and insured for \$6,500.

One of the car ferries built by Capt. James Davidson for service between Peshtigo and South Chicago, Lake Michigan, was expected to begin service this week. The second boat was launched at West Bay City a few days ago and will also be ready for service shortly.

John P. Moore, veteran lake master, died at his home in Chicago, Monday. Capt. Moore began sailing in 1850 and continued for nineteen years, when he was made manager of the floating property of the Peshtigo Lumber Co. at Peshtigo, a position which he held for fifteen years.

H. W. Ferris, keeper of the life saving station, writes from Huron City warning the vessel men that three of the balls in the bell buoy off Point Aux Barques light are fouled and only one ball can strike the bell, the sound only being heard occasionally and at a short distance.

An electric steering apparatus, built by the General Electric Co., Schenectady, has been installed on the whaleback steamer John Trevor. Its operation will be watched with interest, as it is intended to apply electric steerers to all of the whalebacks if this one works successfully.

Chief Engineer Perry and Passed Assistant Engineer Norton of the navy department, who recently made a test of engines and boilers on the North West, are said to have been well pleased with the engine performance. They regard the two steamers as equal to the transatlantic liners.

The steamer E. C. Pope, which collided with the Northern Light last Sunday, was docked in Dunford & Alverson's new Port Huron dock. This is the largest boat ever in the dock, but they can dock the largest boat on the lakes. There are only a few docks that can take in the 400-footers, and masters should remember this Port Huron dock.

from the shore line. These lights will form a range for running the main channel of the Detroit river, intersecting the Mamajuda range at a point about 950 feet to the eastward of Grassey island light.

Capt. Dayton, inspector of the ninth light-house district, directs attention to the reef, with 16 feet least water over it, which was discovered recently by the U. S. S. Michigan, twenty miles W. ¼ N. from Beaver island light station, Lake Michigan. A 25-foot spar buoy with red and black horizontal stripes has been established near its N. W. extremity in 19 feet of water, on the following bearings: South Fox island light, S. S. E. ¼ E., 16¾ miles; Beaver island light, E. ¼ S., 20 miles; S. E. point of Gull island, N. E., 10 miles. The shoal will be known as Boulder reef.

Success has attended the movement of one big raft on the Pacific. It was built on the Columbia river and contained between 6,000,000 and 7,000,000 feet of lumber. The raft was made of piles so closely bound together that not a timber in the whole great bulk was movable. It was started from Oregon late in July in tow of the steamer Mineola, and arrived in San Francisco August 2, after as smooth a trip as though it had floated down a placid river instead of a considerable stretch of the Pacific ocean. It would have taken several score of ships to transport the lumber and the owners of the raft have cleared something over \$22,000 by the success of the experiment. Several similar rafts have been started on a similar trip, but while one or two have been a modified success, some of the largest have gone to pieces in stormy weather and been a total loss.

ALL NEW HYDROGRAPHIC CHARTS ARE KEPT IN STOCK BY THE  
MARINE REVIEW, 516 PERRY-PAYNE BUILDING, CLEVELAND.



### Lake Freights—Iron Still Advancing—Dollar Ore.

Sales of pig iron, on orders running six to eight months into the future, are reported at \$15.25 to \$15.50 at Mahoning valley furnaces, and pig iron manufacturers are in some cases wondering if the situation is not even too strong. Leading steel works of the country have, within the past week or ten days, been making heavy purchases of Bessemer pig iron, delivery on some of it running into the first quarter of next year. Western railways are buying largely of rails and other material for renewals, and orders for new cars, etc., are certainly of sufficient importance to warrant the strong feeling that prevails throughout the iron industry. Among the latest announcements from western railways is one to the effect that the Cincinnati, Burlington & Quincy has laid aside \$1,200,000 for new equipment. The output of Bessemer pig iron for the balance of the present year is, in fact, so well sold up that the matter of prices on anything but future business is of no significance.

This buying for the future is especially encouraging as regards next season's business on the lakes, but the great drawback in both iron ore and coal just now is the fact that the present season's output was sold early at very low prices, and every effort to advance freight charges is resisted to the utmost. But the vessels must have a share also in the profits of the balance of this year. The ball was started rolling Monday when 3 cents was paid at Duluth for immediate loading, wheat to Buffalo, and when numerous offers of 95 cents on ore from the head of Lake Superior failed to attract to the ore trade any more vessels than have been on the market for two or three weeks past. Accordingly on Tuesday \$1 was paid from the head of the lakes and 60 cents from Escanaba. It is now certain that vessels tied up for the full season on 80-cent ore contracts and 35-cent coal must suffer on account of their engagements. Grain exports are light, and the absence of a strong foreign demand is discouraging, but it would seem from the movement already started from Duluth, that the grain is anyhow to be shipped eastward in large quantities.

Long delay in settling the Marquette range labor troubles is due almost entirely to the feature of the ore situation which involves low-priced sales and low contracts. A similar condition of affairs in the soft-coal trade, and one even more vexatious to the vessel owners, has presented itself very forcibly within the past few days. It is well known that certain Cleveland brokers and vessel owners made contracts early this spring to carry large quantities of soft coal to the head of Lake Superior at 32½ and 35 cents. So long as the wild rate on coal was not advanced above the contract rate, there was little effort on the part of such vessel owners or vessel brokers to keep the market down, but it is certain that the advance to 40 cents in the Lake Superior rate, which was secured a few days ago, was not helped by the vessel owners or brokers who are involved in contracts. It is the old story of speculation working to the disadvantage of the vessel interests in general. The demand for coal carriers has not, however, been so urgent in three years as it is at present, and if the anticipations of the vessel interests regarding fall grain freights are realized, further advances in coal freights may be expected.

In the Lake Superior lumber trade the demand for vessels has been constantly increasing, and freights are now strong at \$2 from the head of the lake to Buffalo and Tonawanda, and \$2.25 to Chicago.

### Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Aug. 24, 1895:

	Wheat, bushels.	Corn, bushels.
Chicago.....	14,513,000	1,612,000
Duluth.....	4,377,000	.....
Milwaukee.....	352,000	.....
Detroit.....	398,000	66,000
Toledo.....	1,151,000	198,000
Buffalo.....	1,076,000	323,000
Total.....	21,867,000	2,199,000

As compared with a week ago, the above figures show at the several points named a decrease of 666,000 bushels of wheat and an increase of 115,000 bushels of corn.

### Electric Ferries.

At Bergen, Norway, a row boat ferry service has been replaced by small electric boats, which run between six landings with maximum distances of 2,400 feet. Extreme dimensions of the boats are 26 feet length, 6½ feet breadth and 2½ feet draft. They carry about 18 passengers each. The boats are built symmetrically fore and aft, and are provided with a screw and rudder at either end. The screws are on a common shaft, direct coupled to the motor. A series wound motor is used, weighing about 600 pounds and rated at 3 horse power; it is placed in the middle

of the boat under the flooring. The storage batteries are placed partly under the flooring and partly under the seats. The plates of each battery weigh about 3,000 pounds and have a capacity of about 20,000 watt hours. The battery consists of thirty-two cells in series, and weighs altogether 5,280 pounds.

The average speed with a power of 2,300 watts is about 5 miles an hour, and owing to the crowded condition of the harbor this has been found ample. The bearings of the motor and the shaft are self-lubricating while running, so that the man at the wheel, who operates the boat alone can give attention to steering it. Each boat runs about 37½ miles a day. About 1,800 passengers, on the average, have been carried by the ferry each day. After the day's work is over the boats return to the charging station where the accumulators are charged during the night, and then the necessary cleaning is done and repairs made. The charging station is fitted with a compound portable steam engine, a dynamo of 30 horse power and a suitable switchboard. The total cost of the plant was as follows: Eight boats, including duplicate parts, \$11,900; charging station, boat harbor and landing places, \$9,520; total, \$21,420. During eight months of uninterrupted operation the plant has proved excellent in every respect.

### Make the Straits a Little Wider.

Capt. John Lowe of the steamer Kaliyuga was ashore at Bois Blanc, near the straits, not long ago. Everybody heard of it, but few could tell of it in the facetious style that the captain uses in writing his friend, Capt. Wm. S. Mack of Cleveland. Following is a copy of his letter:

Capt. W. S. Mack, Cleveland—Dear Sir: Relative to prospective improvements at Mackinaw, I would modestly suggest that the straits be made one mile wider on the Bois Blanc side. Say to your friends and all others interested in passing Cheboygan light-house, expeditiously, that it can't be done by going through the island nor by going "nor-east" of the light, as there is no canal there as yet. I am still looking forward to the final completion and perfection of all things which a bungling nature has left in such frightful disarrangement. Then, too, the considerate judgment of mankind has always been so freely bestowed on the conduct of the average radical individual, that the idea of ceasing future explorations for the good of my race has not yet occurred to me. To all who may have money in view in such undertakings, I would say, however, be careful. You will lose it on a cashless route. But he who would venture on the wide and boundless sea of upturned difficulties, without a course and with nothing in particular in view, has my sympathy. I am looking for the courteous compliment usually extended to the successful, namely, a banquet, with its smiles and blandishments, given by those who have trod the "mazy-hazy," Arctic walk to success before me. I shall accept the inevitable, though I am consigned to the day of smaller things. Conscious of the needs of the future, I remain yours in the ordinary civilities of ordinary times.

JOHN LOWE.

Cheboygan, Mich., Aug. 6, 1895.

### A Wide and Deep Channel.

For a distance of about 15,000 feet up the mouth of the Detroit river from Bar point light-station, Lake Erie, there is now a channel full 21 feet deep and 400 feet wide. This channel is to the eastward of the line centering Bar point light-house and Bois Blanc light. The east bank of the channel is at present marked by only three red stakes, but Capt. McKay of Cleveland has written Chief-Engineer Anderson of the Canadian marine department, asking him to cause a line of buoys to be placed to the eastward of the channel, the stakes to be placed not more than 1,200 or 1,500 feet apart. On the west side of the center line, Bar point light-station to Bois Blanc light-station, the dredging contractors, L. P. & J. A. Smith of Cleveland, are at work on another 400-foot cut, so that when this dredging, which is a part of the 20-foot channel project, is completed, there will be a channel of 800 feet width, instead of 400 feet as at present, between the two points. The Messrs. Smith confidently hope to finish up this work before the close of navigation.

It might be well for vessel masters to note that at one point in this vicinity there is a shoal spot recently found by the Menominee line steamer Briton. It is about 6,400 feet below Bois Blanc light, directly on the center line of Bar point light-station and Bois Blanc light station, and was on Monday last marked by a buoy.

Engineers from the Canadian marine department have been at Amherstburg recently, and it is expected that arrangements will soon be made by the Canadian government for removing Boston and New York shoals, two bad spots between Bois Blanc island and the Canadian main land, which are now lighted by the vessel owners.

Sweden has erected at Filipstadt a mausoleum, costing 40,000 Swedish crowns, to the memory of John Ericsson, her greatest genius. There is some regret that the monument was not erected at Stockholm.



### Why the St. Louis was Given a Speed Trial.

To the owners of the new American line steamer St. Louis there was more than glory in the fact that she had maintained a speed of 22.3 knots for over four hours, on trial in the English channel, a few days ago. This trial, conducted by United States naval officers, was for the purpose of determining the right of the ship to postal subsidy under the act of March 3, 1891. This act gives the postoffice department authority to contract with citizens of the United States for carrying the mails on American steamships to such foreign countries as, in its judgment, will best subserve and promote the postal and commercial interests of the United States, the service to be equitably distributed among the Atlantic, Mexican, Gulf and Pacific ports. In addition to being of American register, eligible vessels must be owned and officered by American citizens, and certain proportions of their crews are required to consist of American citizens. The contracts are to run for five and ten years respectively. The proportion of Americans among the crew is required to be increased from one-fourth during the first two years of the contracts to one-half during the last half of the period. The minimum speed of the first-class of these vessels is put at 20 knots per hour, a speed which was surpassed easily by the St. Louis. There are three other classes, the minimum speed for which is put at 16, 14 and 12 knots respectively.

Perhaps the most interesting and certainly not the least important feature of this legislation is the provision made for the economical conversion of these vessels into naval cruisers. The vessels of the first-class are required to be constructed with a view to this end, and in accordance with plans and specifications to be agreed upon by the owners and the secretary of the navy, and of sufficient strength and stability to sustain the operations of at least four effective 6-inch rifled cannon. The act provides that no vessels can be employed by the postmaster-general without having gained the approval of the secretary of the navy, and in addition, it requires all accepted vessels to take American boys as cadets and apprentices, and stipulates that any of these steamers may be taken and used by the United States as transports or cruisers upon payment to the owners of the actual value of the vessels at the time of taking. The compensation for the service rendered in carrying the mails ranges from 66 cents to \$4 per mile.

### Trade Notes.

An advertisement from Major M. B. Adams, light-house engineer at Detroit, calling for proposals for the construction of a fog signal house at Cheboygan, Mich., appears elsewhere in this issue.

A tug, dredge, water boat, three dump scows and a sand pump with boiler will be sold in accordance with bids which will be received until September 19, by Lieut. W. W. Harts, United States Engineer at Newport, R. I. Full information will be furnished on application.

The Continental Iron Works of Brooklyn, N. Y., recently obtained orders for twelve Morison suspension furnaces, six of which are to go to the W. & A. Fletcher Co., and six to the Morgan Iron Works, to be used in boilers of two freight steamers being built at Roach's yard, Chester, Pa., for the Vermont Central railroad.

The Northwestern Lumberman, issue of August 24, contains an article descriptive of the works of Wickes Bros., Saginaw; in connection there are portraits of the elder and younger brothers, four in all, who are engaged in the management of the concern. This firm is as well known among lumbermen, for the manufacture of sawmill specialties, as it is in the marine trade on account of the manufacture of steamboat boilers of the largest type.

C. Endress & Sons, who conduct an extensive fishing business on Lake Superior, write H. G. Trout of Buffalo from Whitefish Point, Mich., as follows: "The wheel you furnished for the tug E. E. Endress has been thoroughly tried, and we are more than pleased with the results. When we ordered the wheel, we did not expect anything better than what she had on, but the tug is making a mile an hour better time and backs fully as well, if not better than with the old wheel."

James McBrier of Erie is one of the vessel owners who had reached the conclusion before the opening of the present season that there was no money in 80-cent ore. He had the returns of his own vessels in 1894 to prove it, and this season his vessels have been operated without a pound of contract stuff of any kind, and also under orders not to be chartered until they have passed the Sault bound up. In the Fedora, Nyanza and Uganda, Mr. McBrier has three good wooden boats. He is figuring for the construction of a big steel tow barge and will probably close a contract for such a vessel before the season is at an end.

George H. Warrington of Chicago, who is the inventor of a water tube boiler that has been applied to several steam yachts and other small craft, says the Babcock & Wilcox water tube boilers in the 400-foot steamer Zenith City, will be a success, largely for the reason that there will be no necessity of forcing them.

### A Few Points Regarding Towing Machines.

In view of the interest attending the operation of steam towing machines, which have been fitted to all steel tow barges on the lakes, the following letter from the shore engineer of the Philadelphia & Reading Transportation Line, one of the concerns using the machine on the Atlantic coast, will prove interesting:

Mr. Frank S. Manton, Agent American Ship Windlass Co., Providence, R. I.—Dear Sir: In reference to your patent towing machine, one of which we now have in use on our new steamer Lebanon, we can say that it does all that you claim, and more. In other words, it does its work with no outside assistance. This machine assists greatly in keeping the barges in line with the steamer, which is quite an important factor when considering time and speed. As soon as the leading barge takes a sheer and allows the hawser to get slack, the machine will take up this slack and haul the barge up until she is in line, and then pay out the hawser until the proper length is gained. Another good feature of the machine is in the automatic movement which allows the hawser to come in and go out as the strain diminishes or increases, thus alleviating the strain on ship, barge and hawser. By this action the revolutions of the engines are kept up to a standard and fuel is saved. In taking in and getting out the towing hawser to the barge this machine saves time and wear and tear on the hawser, as by its automatic movement the hawser never gets to the bottom, but is wound in and the barge hauled up under the steamer's stern while the latter is under way.

With the machine on our steamer Lebanon we can haul up a tow of three barges, each carrying 1400 tons of coal, under the steamer's stern in about seven minutes while the steamer is under way. With the old method we are compelled to slow down and sometimes stop entirely before we could get in the hawser, and this would consume at least thirty minutes. The machine on the steamer Lebanon has recommended itself, and we will introduce one on our sea tug International as soon as you have same completed, which we hope will be in the near future, as we do not want to incur expense and take risks with manila hawsers when a towing machine will overcome all the trouble.

VESPASIAN ELLIS, Shore Engineer,

Philadelphia & Reading Trans. Line,

Port Richmond, Philadelphia, Aug. 20, 1895.

### Shipments and Analyses of Minnesota Ores.

The following table, giving average analyses and shipments of Mesabi and Vermilion range ores during 1894, was made up from statements furnished by the mining companies. It is taken from a review of Mesabi range mining matters, just published by the Iron Age of New York, and will undoubtedly prove valuable for reference. The statements are those said to be made by chemists for commercial purposes, in actual shipments:

SHIPMENTS AND AVERAGE ANALYSES OF MESABI AND VERMILION RANGE ORES, SEASON OF 1894.

Mesabi range.	Shipments. Gross Tons.	Iron.	Average Analyses.	
			Phosphorus.	Moisture.
Minnesota Iron Co. :				
Auburn.....	110,809	62.11	0.064	3.12
Canton.....	189,457	61.21	0.048	7.31
Norman .....	39,008	61.72	0.056	3.32
Lake Superior Consolidated:				
Mountain Iron grade ..	319,001	64.18	0.043	.....
Helmer grade.....	100,950	63.30	0.0515	.....
Tubal grade .....	153,491	63.42	0.060	.....
Minnewas mine.....	2,162	64.40	0.058	.....
Oliver Mining Co.:				
Oliver grade ..	172,330	63.50	0.059	9.37
South Side .....	271,214	61.00	0.075	8.90
Preble.....	62,429	59.60	0.082	8.40
Biwabik Mining Co.:				
Biwabik.....	77,728	64.61	0.0294	8.05
Mesabi Biwabik.....	12,508	62.20	0.0482	9.32
Franklin *	223,399	64.44	0.033	4.88
Vermilion range.				
Minnesota Mine:				
Minnesota grade .....	183,860	67.52	0.049	0.30
Vermillion grade.....	154,132	67.27	0.154	0.30
Soudan grade.....	7,290	65.15	0.137	0.68
Red Lake grade.....	12,712	64.13	0.121	0.55
Chandler Mine:				
Chandler grade.....	464,703	64.14	0.043	0.74
Long Lake grade .....	67,404	60.65	0.046	1.22

\* Silica in Franklin, 2.85 per cent.

The table covers practically all the shipments from the two ranges in the year 1894, excepting the Hale, which sent out 24,167 tons of non-Bessemer ore, and the Vega, which shipped 5,628 tons.





DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,341 vessels, of 1,227,400.72 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons and over that amount on the lakes on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1894, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels.....	1,731	843,239.65
Sailing vessels.....	1,139	302,985.31
Canal boats.....	386	41,961.25
Barges.....	85	39,214.51
Total.....	3,341	1,227,400.72

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30,	Number.	Net Tonnage.
1890.....	218	108,515.00
1891.....	204	111,856.45
1892.....	169	45,168.98
1893.....	175	99,271.24
1894.....	106	41,984.61
Total.....	872	406,976.28

#### ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1894.	1893.	1892.	1894.	1893.	1892.
No. vessel pass'ges	14,491	12,008	12,580	3,352	3,341	3,559
T'n'ge, net registd	13,110,366	9,849,754	10,647,203	8,039,106	7,659,068	7,712,028
Days of Navigat'n	234	219	223	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

VESSEL masters who are asking for the reestablishment of the old light at Bete Grise bay, now in ruins, may rest assured that the Lake Carriers' Association is doing all in its power to secure an appropriation from congress for that purpose. The bill authorizing a great number of lights for the lakes, which passed congress in February, 1893, contains a clause for the reestablishment of a light and fog signal at Mendota, Bete Grise bay, at a cost not to exceed \$7,500. It is, of course, one thing to secure authority from congress for navigation aids of this kind and another matter to obtain the necessary appropriation. The latter effort is usually the more trying of the two. But this light is needed and an appropriation for it will very probably be included among the "specials" by the association during the winter's work in Washington. The place in question is a small harbor on the south side of Keweenaw point, Lake Superior. In the fall of the year, vessels west bound continually desire to use this point as a harbor of refuge, in which to await fair weather before attempting the passage around Keweenaw point. There was formerly a light there but it was discontinued owing to the suspension of local business. If the light were reestablished the place would be very extensively used. It often happens now that there are a dozen or more vessels of all descriptions seeking the shelter of Bete Grise bay, but these boats are obliged to anchor a long distance off shore, as there is no light to show them just how close they are to the entrance, and the vessel masters dare not venture too close toward the shore for fear of grounding.

A REPORT FROM Gen Poe and his associates on the commission of army engineers, appointed by the secretary of war to investigate the Chicago drainage canal question, has been made public, and as had been expected these officers simply say in substance that the drainage canal when opened will lower lake levels, but how much they do not know; neither are they willing to make any estimates on the subject. The engineers say they have only the Niagara river discharge observations from which to measure the probable effect of the Chicago waterway, and this they evidently regard as insufficient. They make no definite suggestions as to how to determine the effect of the drainage canal on lake levels, except to point out the necessity for actual measurements of the outflow at points other than Niagara. The engineers are of the opinion, however,

that federal supervision must be extended to the canal in time. In this they are right, but as far as their investigations otherwise are concerned the question of the effect of the canal on the channels and harbors of the lakes is as far from being settled as ever.

IN ORDER TO be prepared, this fall, to secure, if possible, the support of the light-house board and the secretary of the treasury for such aids to navigation as may be asked for by the Lake Carriers' Association, a list of lights, fog signals, etc., is being made up thus early by Capt. McKay of Cleveland and Secretary Keep of Buffalo, who will, of course, be pleased to receive suggestions from members of the association or from masters of lake vessels. The object in beginning this work early is to consult the light-house board and treasury department officials in the matter in advance of the preparation of the secretary's recommendations to congress. The new aids that will be asked for by the association will be largely those which were authorized by the act of Feb. 15, 1893, but for which no appropriations have as yet been made. It will be remembered that this act, which was known as the omnibus bill, authorized some fifty-two aids to navigation in different parts of the lakes. Not all of these have as yet been secured, as great difficulty has been found in obtaining appropriations, notwithstanding the fact that the expenditure of money involved has been authorized by congress.

WHEN THE REVIEW some time ago illustrated the freight ships built by the Chesapeake & Ohio Railway Co. for transatlantic service, and directed attention to the deep-water terminals of this company at Newport News, Va., it was evident that close connection with another Vanderbilt railway, the Cleveland, Cincinnati, Chicago & St. Louis, was certain to make this line a strong competitor of the trunk lines that are furnished with a big business from lake territory. Now the Chesapeake & Ohio, which secures a big share of flour and other export trade from Michigan, Wisconsin and Minnesota, through its Big Four connection, is a full member of the Trunk Line Association. This position has been attained through good management and not cutting of rates. In fact, Mr. M. E. Ingalls, president of the company, is most active in the present endeavor of the trunk lines to maintain rates.

IT WOULD seem that lake ship builders, who occasionally find time to visit foreign yards, or make a study of the methods of British builders, would profit most, just now, by acquainting themselves with the practice of the famous Belfast firm, Harland & Wolff. All lake freight ships of the future will be 400 feet or more in length, and the big works of this Belfast firm seem to have been devoted almost entirely of late to the construction of the very largest type of cargo carrier, a length of 450 to 500 feet being common with them.

WHO WILL be the next president of the Lake Carriers' Association? Capt. James Millen, Capt. E. M. Peck and A. A. Parker of Detroit, as well as Vice-President Gilchrist, H. A. Hawgood and B. L. Pennington of Cleveland, have all been talked of for the place.

#### Car Dumping Machines.

The McMyler car dumping machine at Fairport, which is of the end-dump kind similar to the one that has been used for some time past in loading coal at Ashtabula, is now about ready for every-day work, but it is doubtful whether service of any account will be obtained this season from any of the several other machines planned for different Lake Erie docks. It is not expected that any of the machines to be constructed by the Brown Hoisting & Conveying Co. will be completed this season. The McMyler company is erecting a machine of side-dump type for the Cuddy-Mullen Coal Co., Cleveland, and although it is well along toward completion little work is expected from it until next season. On the Nypano dock, Cleveland, a side-dump machine, of a kind different to those planned by either the McMyler or Brown companies, is being constructed for a company made up of members of the firms of Osborne, Saeger & Co., Morgan, Moore & Baine and Walsh, Upstill & Co., all coal shippers, but the apparatus is, of course, largely experimental and delay is encountered in completing it.

#### Survey of Pelee Passage.

The United States hydrographic office seems to have taken prompt action following the reports from Capt. Peterson of the steamer Lockwood, and others, regarding a shoal near Pelee light, Lake Erie. The U. S. S. Michigan is about to make a survey of the passage, and before doing so Commander Richards sends the following request to the branch office of the hydrographic service at Cleveland: "It being necessary for the survey of Pelee passage to establish one or more water signals some distance to the southeast of the Dummy light, will you kindly notify masters of vessels to be on the lookout, so as to avoid running them down. They are about 20 feet high, painted black and pyramidal in form. Please extend this information as far as possible to other ports on the south shore of Lake Erie."



## Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM  
LATEST PATENT OFFICE REPORTS.

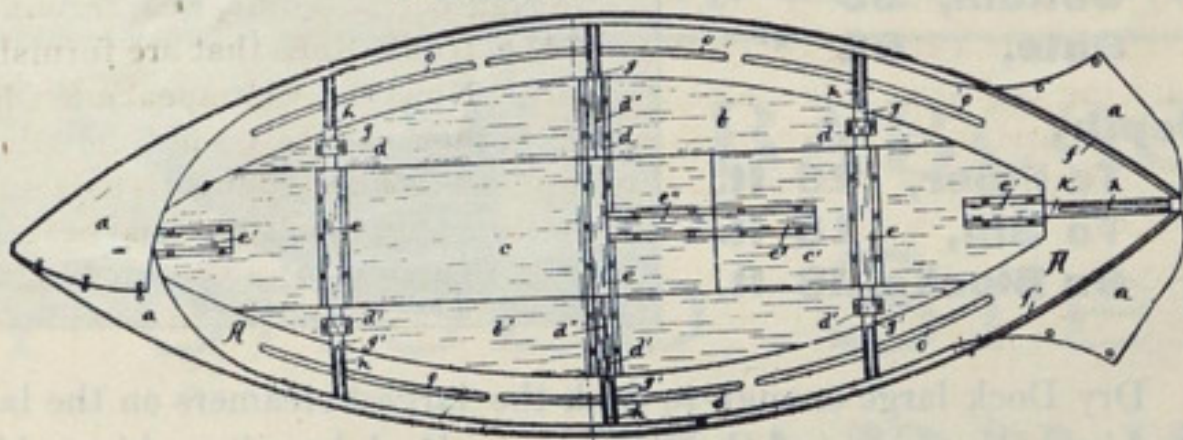
544,676. **Folding Boat.** Manfred U. Loree, Miamisburg, assignor of two-thirds to Eugene A. Ohmer and William D. Huston, Dayton, Ohio. Filed Mar. 12, 1895. Serial No. 541,509.

**Claim.** In a folding boat, the combination with the canvas covering, and the gunwales, of a flooring composed of a plurality of panels, a plurality of detachable ribs extending across the upper sides of said panels over the abutting edges thereof, loops on the upper ends of said ribs, straps inclosed in said loops and adapted to bring the gunwales and ribs in rigid contact, a plurality of detachable stays (a) between the canvas and the ribs.

544,792. **Upright Marine Boiler.** William N. Oldman, Buffalo, N. Y. Filed Mar. 23, 1895. Serial No. 542,889.

**Claim.** In a steam boiler, the combination of a substantially vertical central flue tube extending up nearly to the steam chamber and secured to the tube sheet, and extending downward to the fire chamber, a strengthening bolt extending from the top of the boiler down through the central tube to the bottom of the same, means for rigidly securing it to the top of the boiler and bottom of said tube, several circular series of vertical tubes having their upper ends connected to the tube sheet, each

544,676. FOLDING BOAT.



circular series being divided into several sub-series, each sub-series of tubes being connected at their lower ends to the vertical central tube by means of elbows and horizontal tubes in the same horizontal plane around said central tube, each complete sub-series being thus connected in its own horizontal plane one sub-series above the other, and a series of stay bolts connecting the top of the boiler with the tube sheet.

544,956. **Life-Saving Apparatus.** Robert Bustin, St. John, Canada, assignor of one-half to Robert Keltie Jones, same place. Filed Apr. 17, 1895. Serial No. 546,123.

**Claim.** In a life-saving apparatus, the combination with a traveler adapted to carry a life-belt or other support, of a pulley inclosed between the sides and adapted to ride on the shore-line, or hawser, one of the sides having an opening to admit said hawser, and a friction-brake consisting of a lever fulcrumed between the sides of the traveler and having a shoe upon one end adapted to compress the hawser against the pulley, the other end of said lever hanging below and in front of said traveler frame.

The Baltic-North Sea canal will be lighted by electricity or gas buoys at the locks, and along the line by sixteen-candle-power incandescent lamps on each side, placed about 300 feet apart. About 250 lamps will be connected in series. The placing of so large a number of lamps in series is novel, and the results of the experiment are awaited with interest.

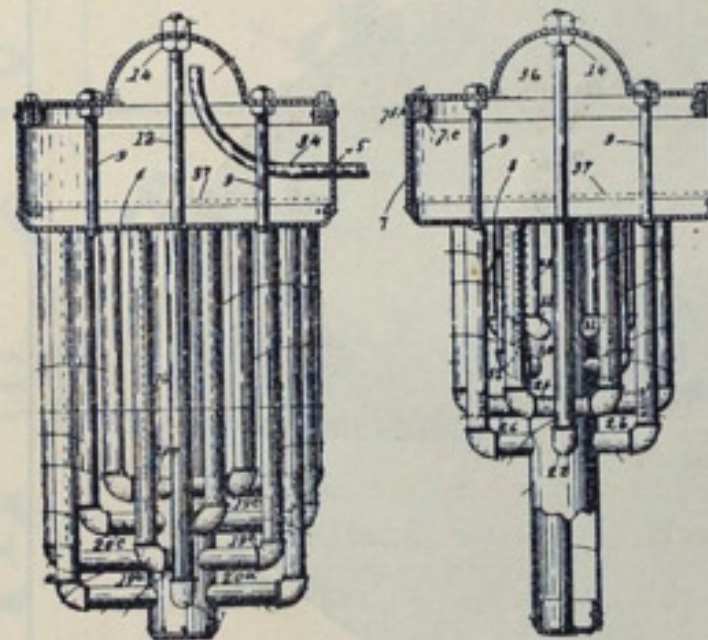
OFFICE OF LIGHT-HOUSE ENGINEER, 9th District, Detroit, Mich., August 23, 1895. Proposals will be received at this office until 3 p. m. of Wednesday, the 4th day of September, 1895, for the construction of a fog signal house on the north pier at Sheboygan, Wis. Plans, specifications, forms of proposal, and other information may be had on application to this office. The right is reserved to reject any or all bids, and to waive any defects. M. B. Adams, Major Corps of Engineers, U. S. A., Light-house Engineer. Aug. 29.

U. S. ENGINEER OFFICE, 34 Congress St., Detroit, Mich., August 7, 1895. Sealed proposals for furnishing all labor, materials and appliances, for (A) removing shoals from west approach, St. Marys Fall's canal; (B) removing shoals from east approach, St. Marys Fall's canal; (C) removing shoals off Six Mile Point, Hay Lake; and (D) removing shoal 29, section 4, ship channel, etc., will be received here until 2 p. m., September 6, 1895, and then publicly opened. All information furnished on application O. M. POE, Col., Engrs., Sept. 1.

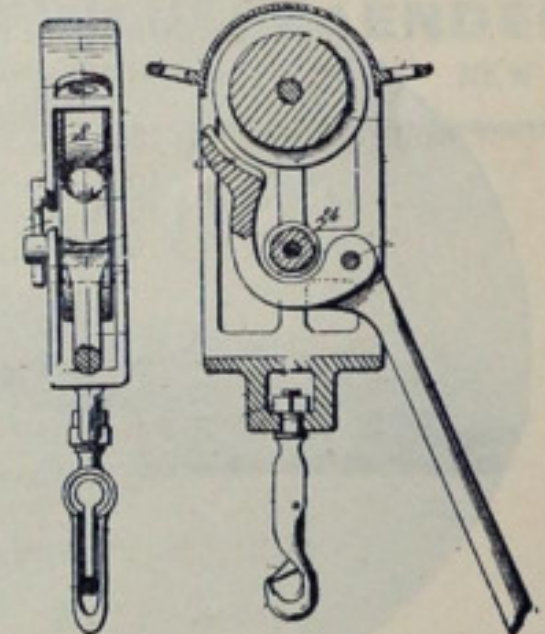
## A Question of Holes.

Editor MARINE REVIEW: I was much interested in your description of the engines of an English-built, side-wheel steamer in your last issue. There are several exceedingly novel features. First comes the method of connecting or disconnecting engines by means of the cylindrical holes keyed on the crank shaft. The locomotive boilers, "closely resembling railway boilers," are also worthy of notice, as is the fact that the "firing holes" come down to the level of the grate bars. I am glad to learn that a locomotive is not essentially a railway device. Also that "firing holes" at the level of the grate bars are making some headway. It is, however, the holes keyed on the crank shaft that interest me most. I wish more specific information were available regarding them. I would like to know how they are arranged; whether the holes are disposed one inside the other or at intervals. It is to be hoped that due care has been exercised in the fitting of them, because if one of them got loose and got tangled up with the twisting moment, the centrifugal effort due to the center of gravity of the moment of inertia getting out of whack with the radius of gyration would unquestionably destroy the equilibrium of the other holes and probably cause a failure of the entire system. There is nothing to be dreaded more than a hole which can not be kept where it belongs. Even the fact that the locomotive boilers are of railway pattern and have firing holes, and these at the level of the grate bars, would hardly restore order. Perhaps the disk may have a restrain-

544,792. UPRIGHT MARINE BOILER.



544,956. LIFE-SAVING APPARATUS.



ing effect, however; it is a new thing and ought to be encouraged. Holes surrounded by a disk can hardly fail to feel more pride of position than those left entirely to the mercy of a key. I wonder if one key suffices for all the holes, or if each one has a key of its own. These things can not be made too clear.

Perhaps, after all, these holes are of the same variety as those Tom Dean talks about. Tom, he of the expansive vest front, who says "I am the condenser man of this country," and who wears (except when he calls on vessel men, when he tucks it out of sight for fear of shocking them,) a miniature champagne bottle on his watch chain, says that down in his country the steamboats, which splash up and down the creeks after a rain, carry cargoes of holes, which are used for a variety of purposes, such as bung holes and post holes. He is sure about the bung holes, because he has recognized lots of them. I trust you will endeavor to give us more light on this important point and not leave us, as it were, in a hole.

WALKING-BEAM.

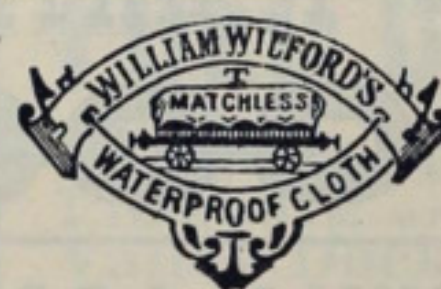
Conneaut, O., August 28, 1895.

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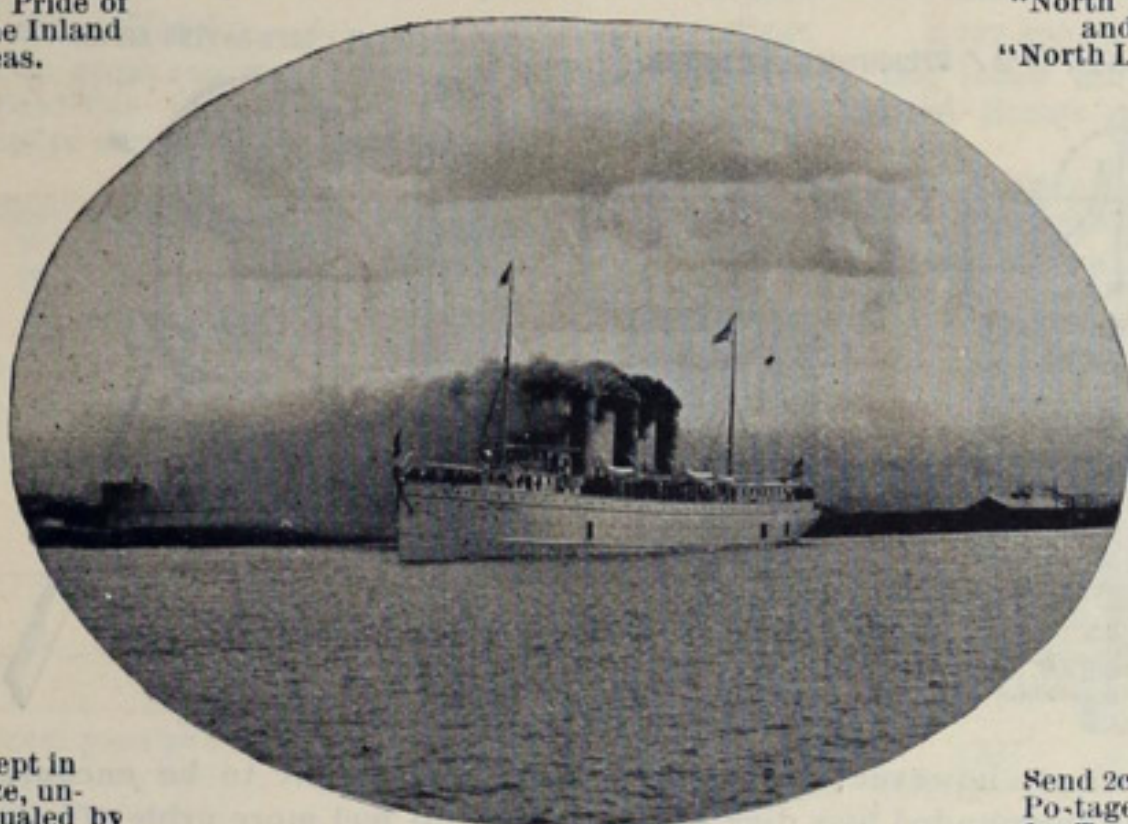
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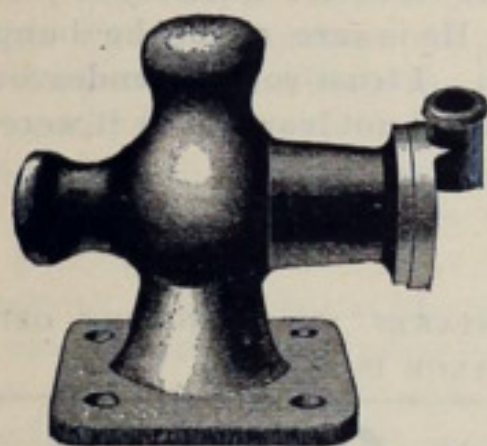
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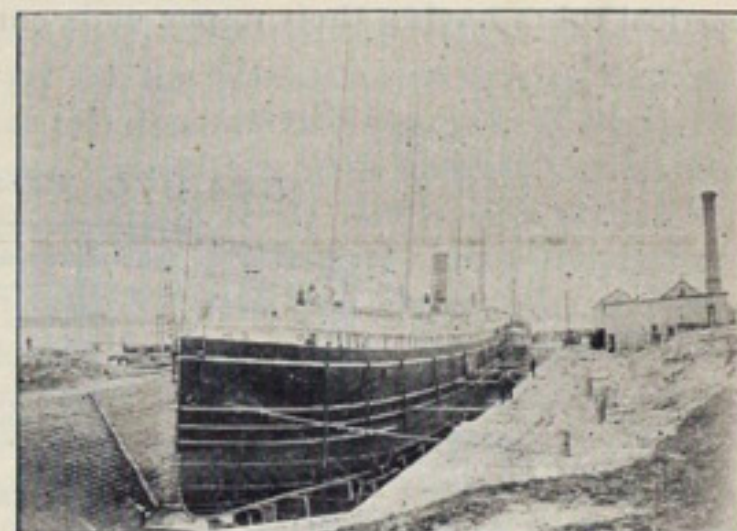
Gate, 62 "

Depth:

To Floor, 20 ft.

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Dry Dock large enough to dock the largest steamers on the lakes.  
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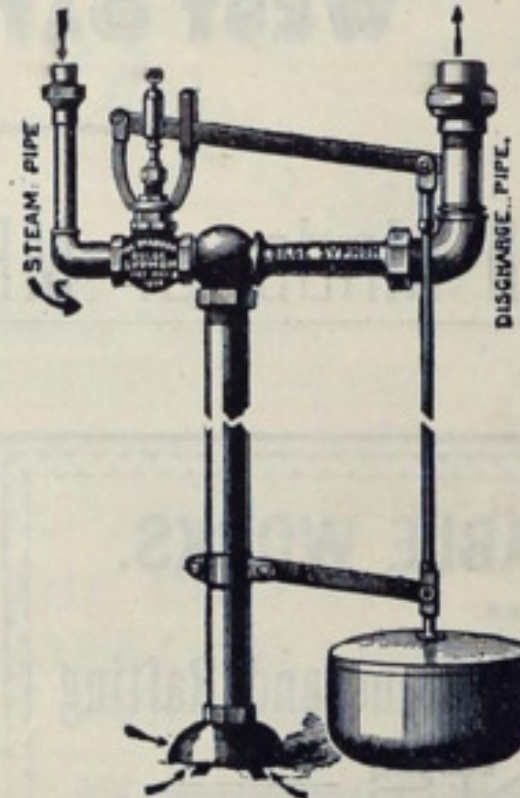


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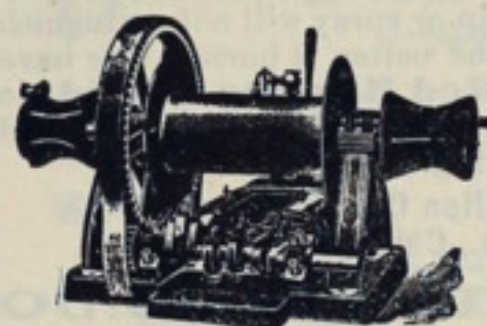
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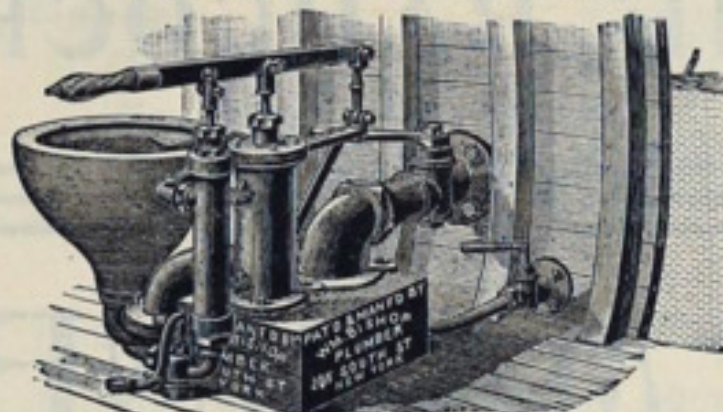
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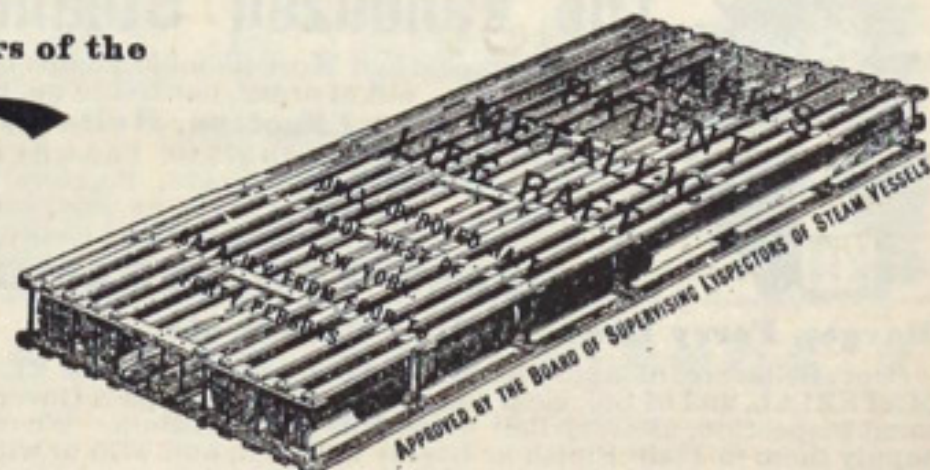
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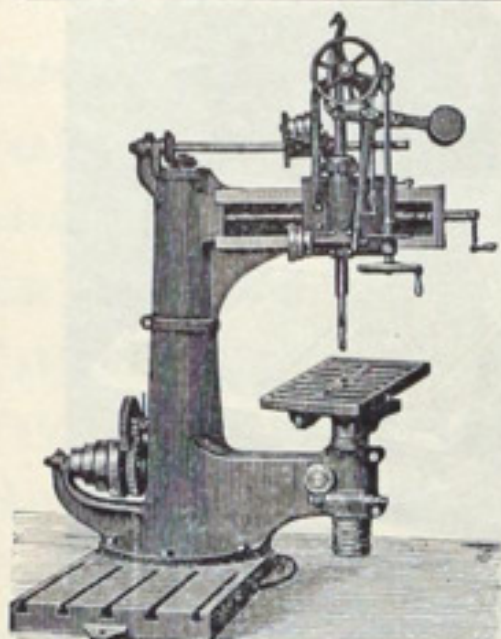
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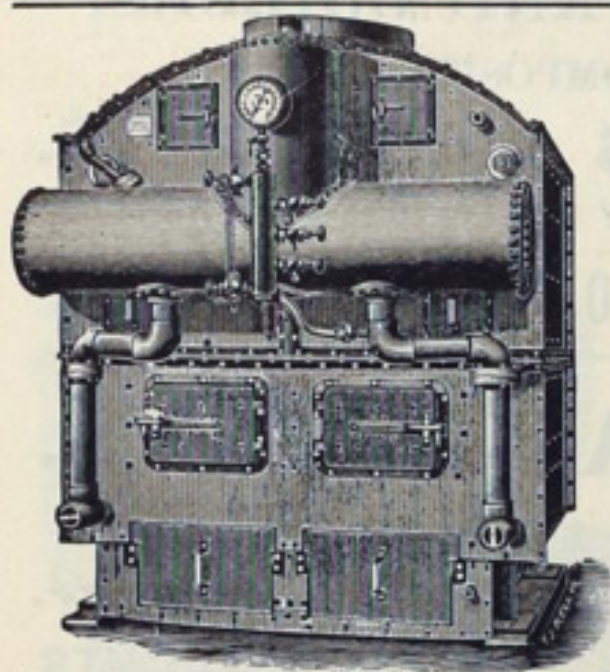
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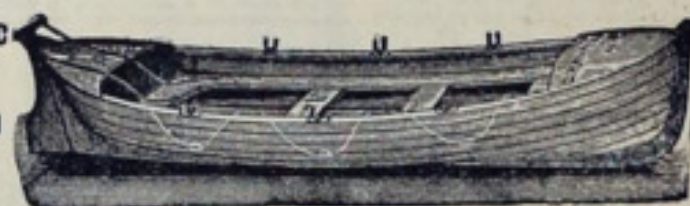
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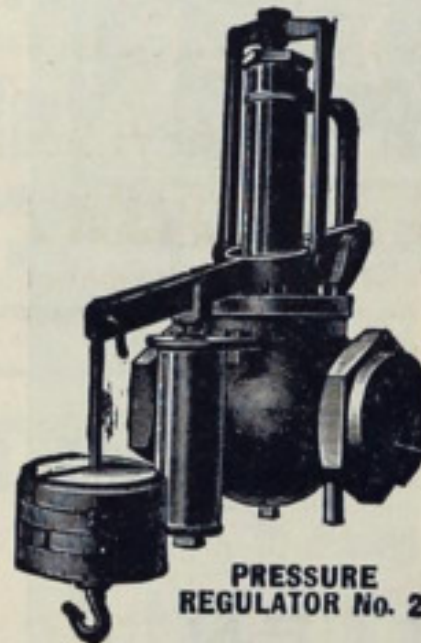


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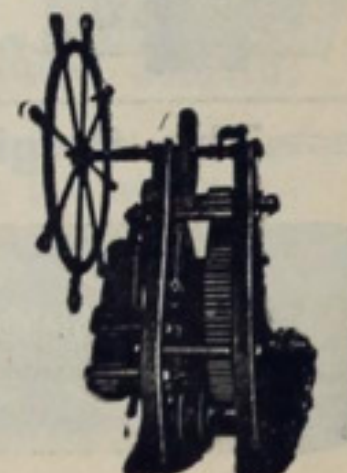
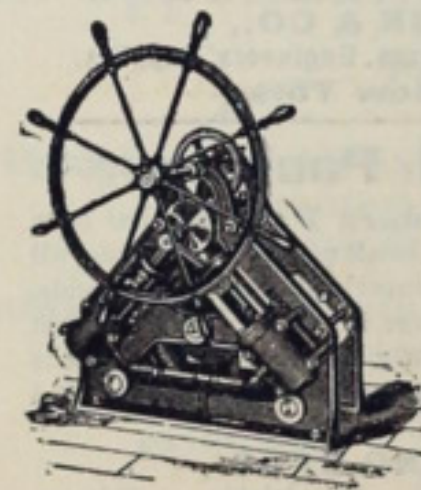
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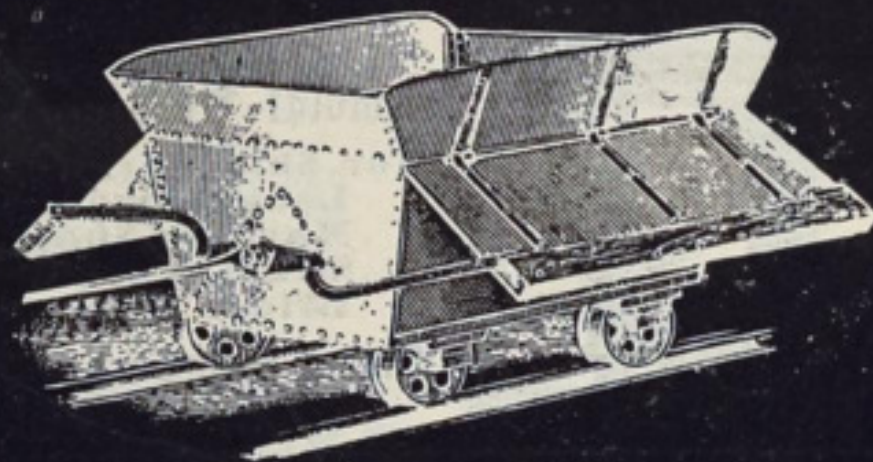
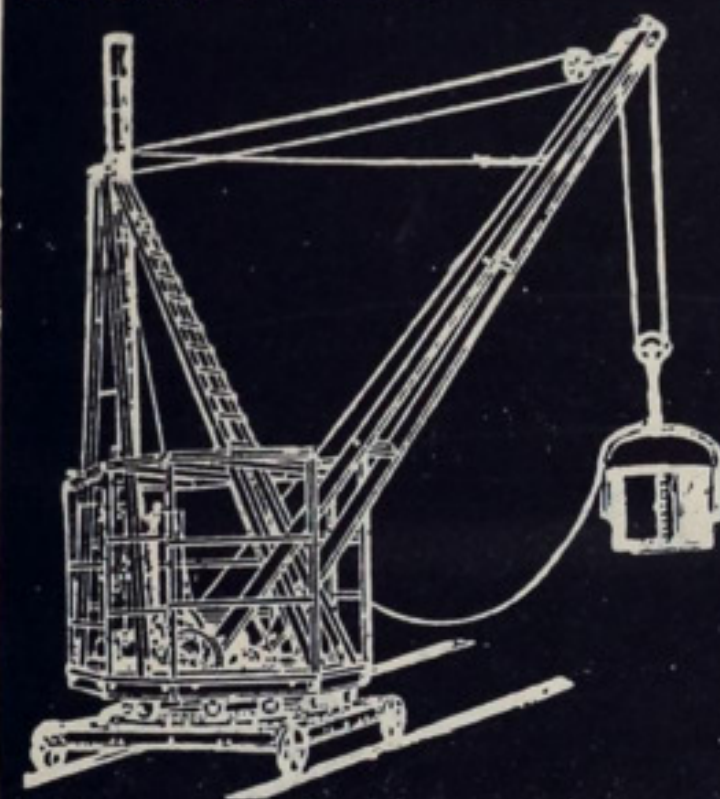
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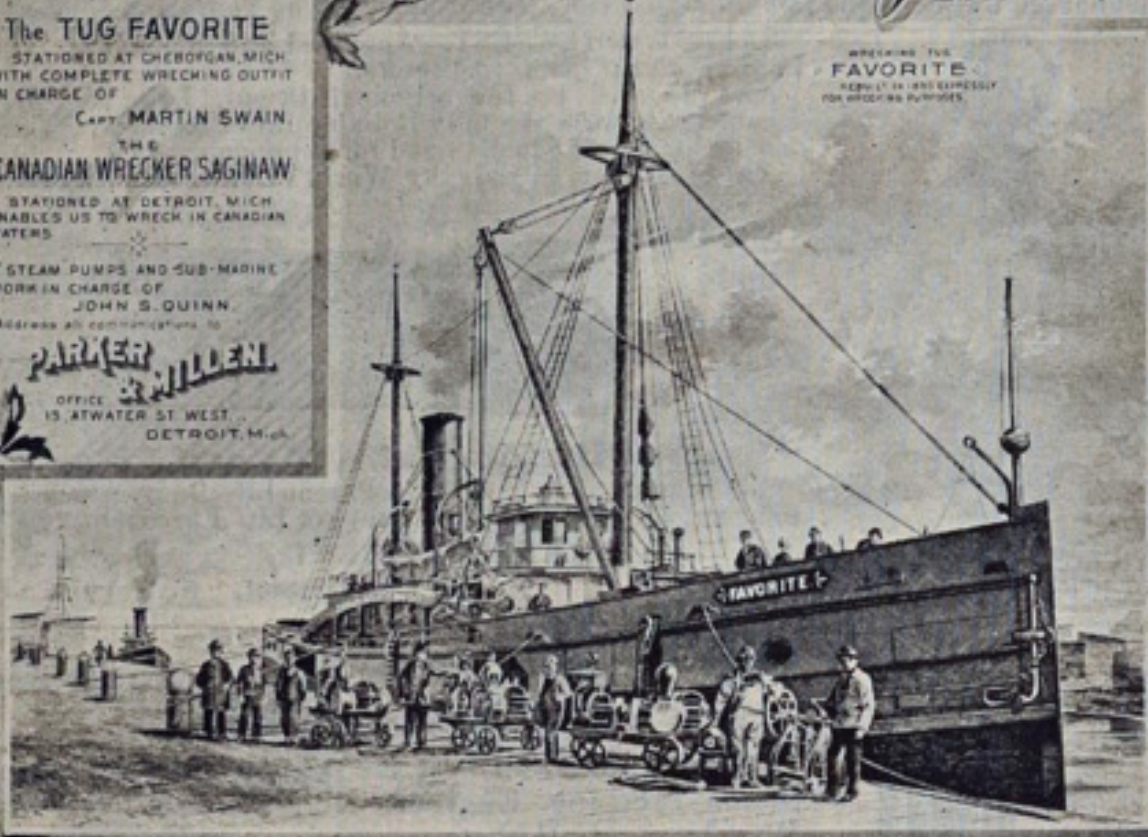
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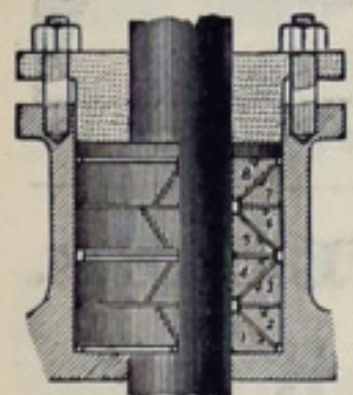
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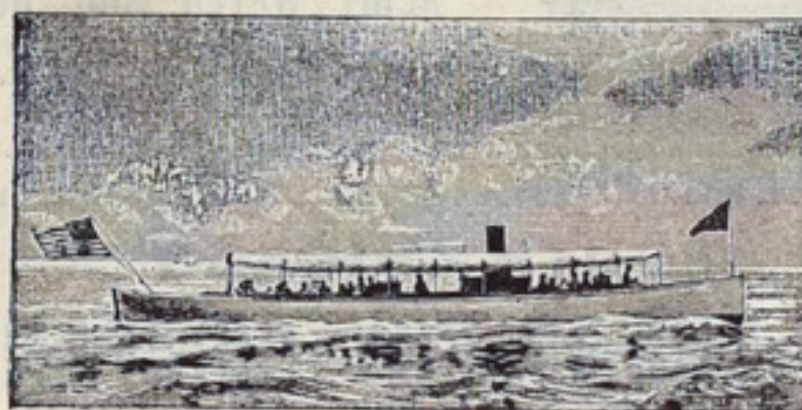
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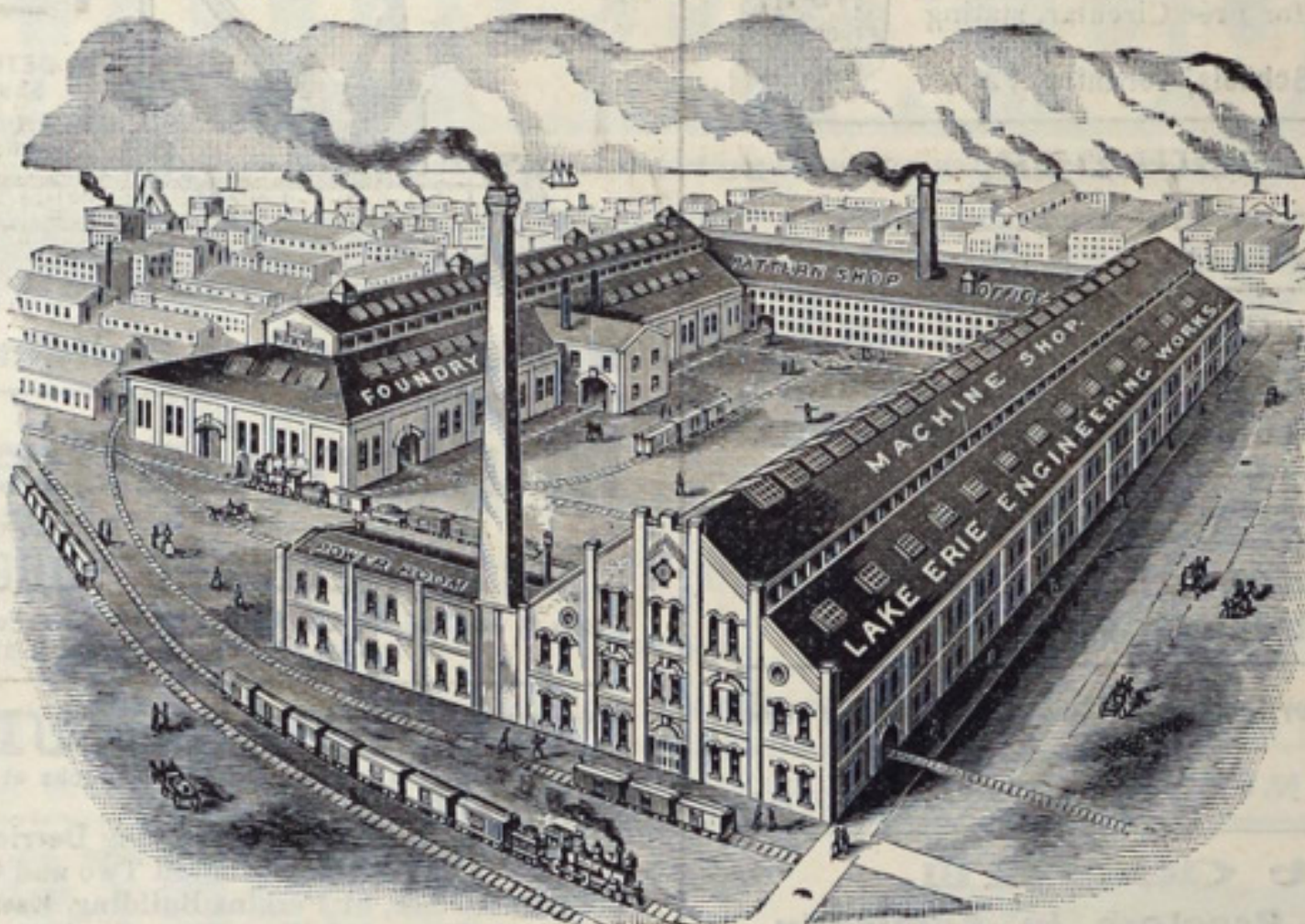


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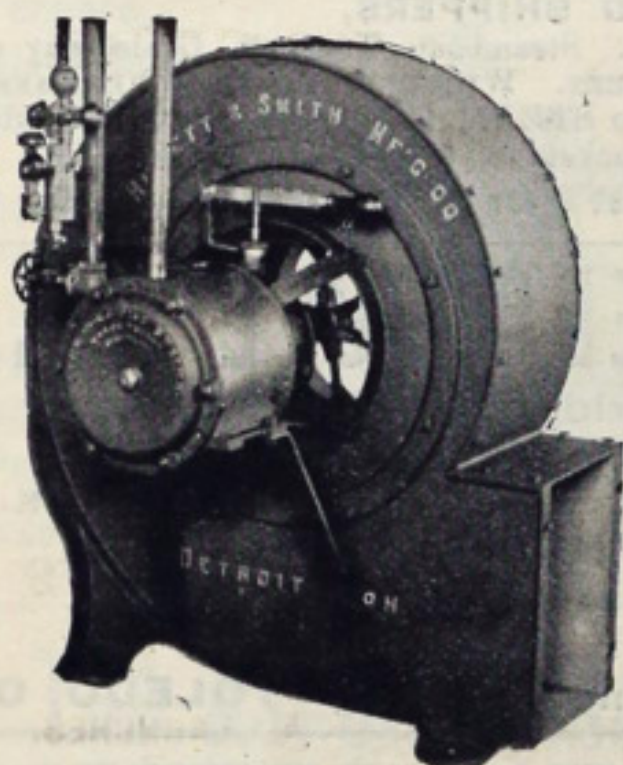
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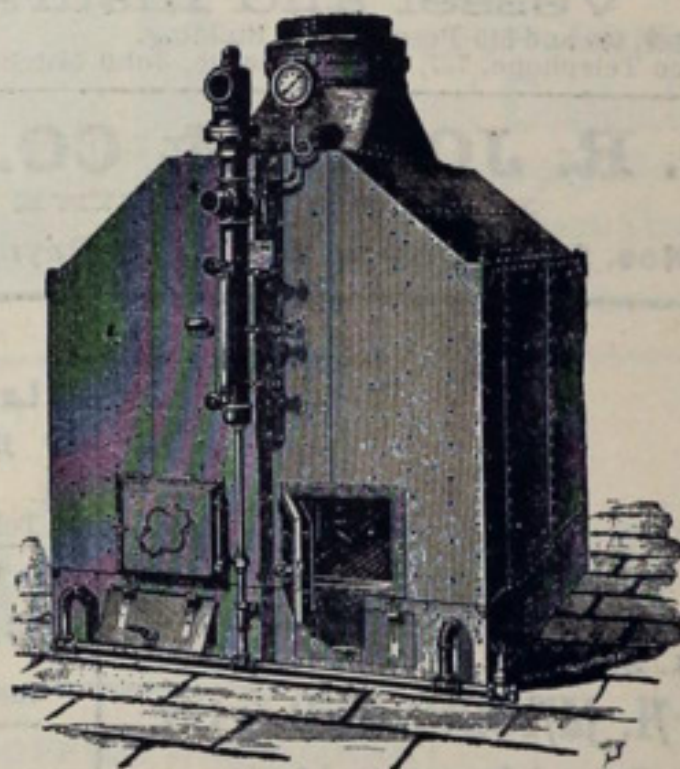
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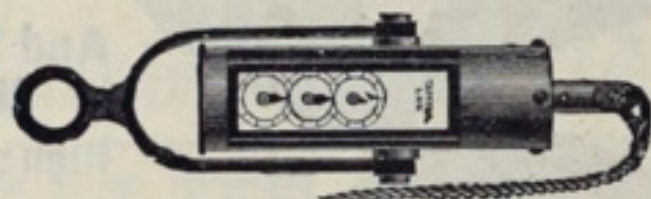
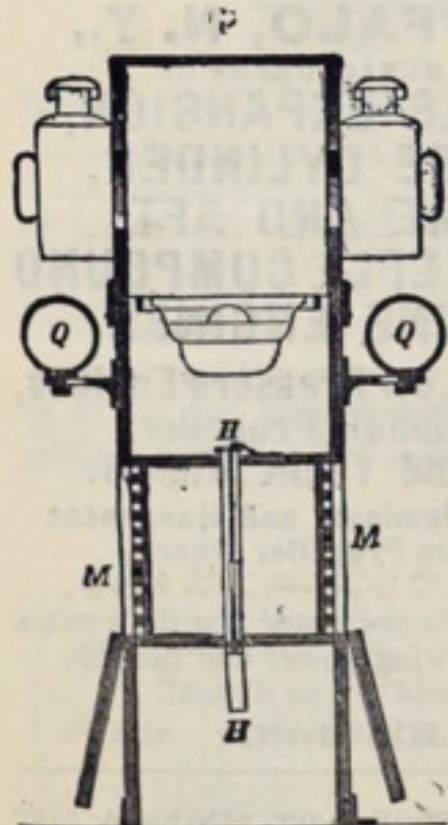


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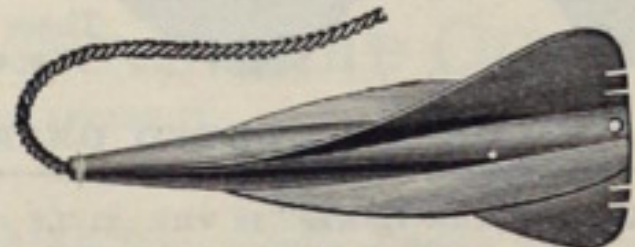
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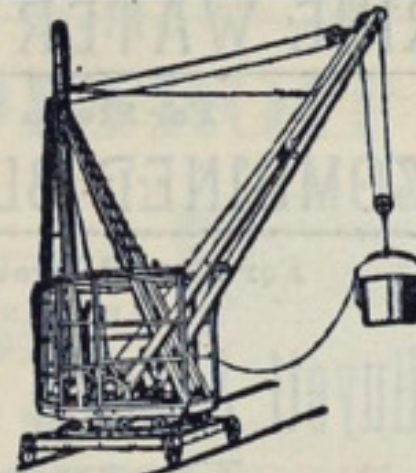
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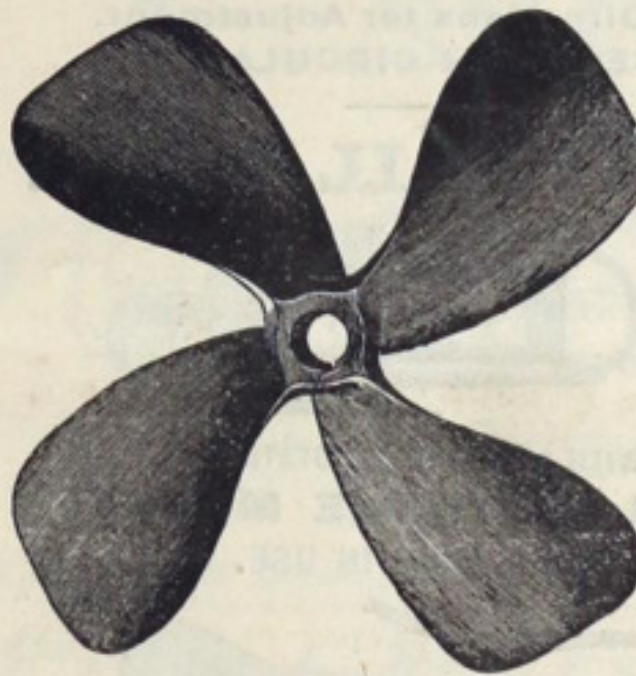
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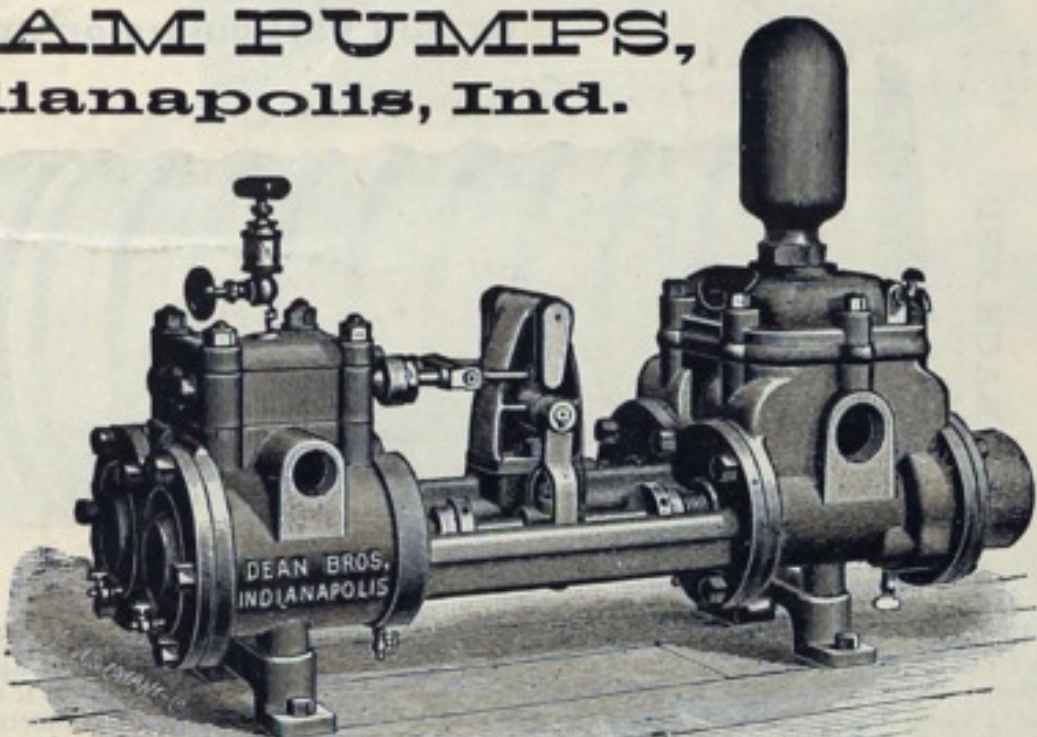
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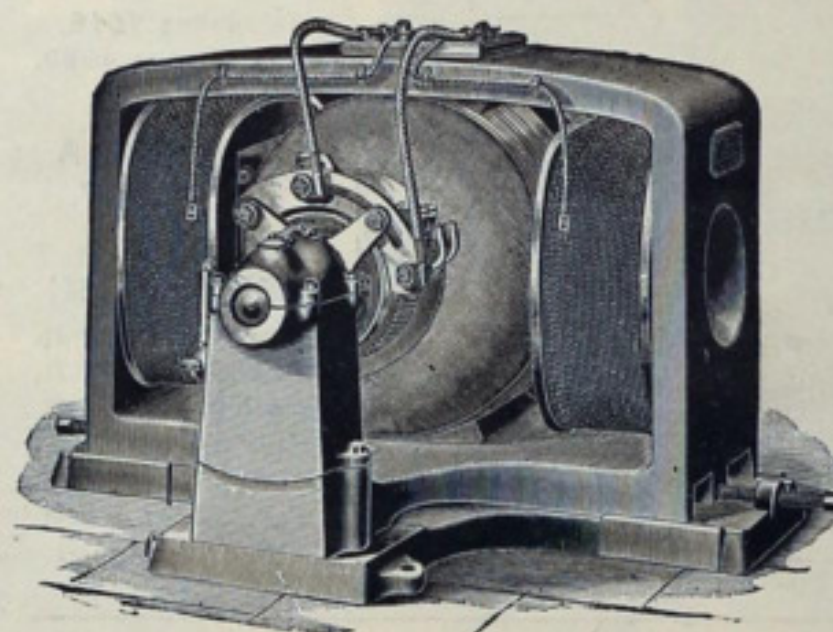
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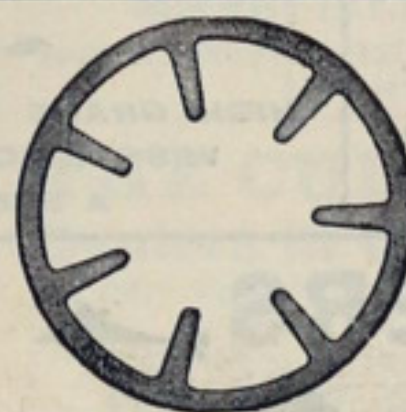
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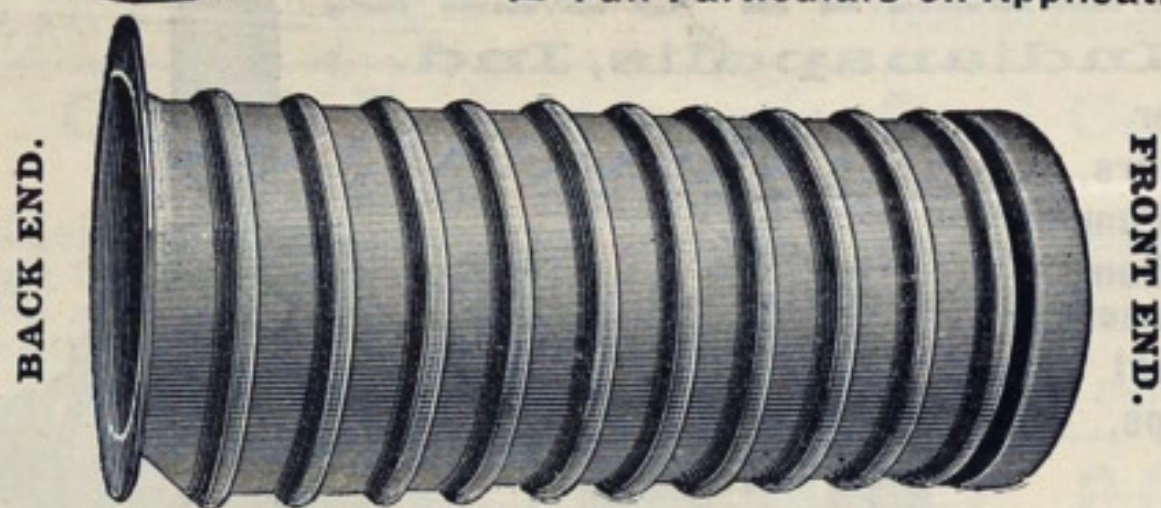
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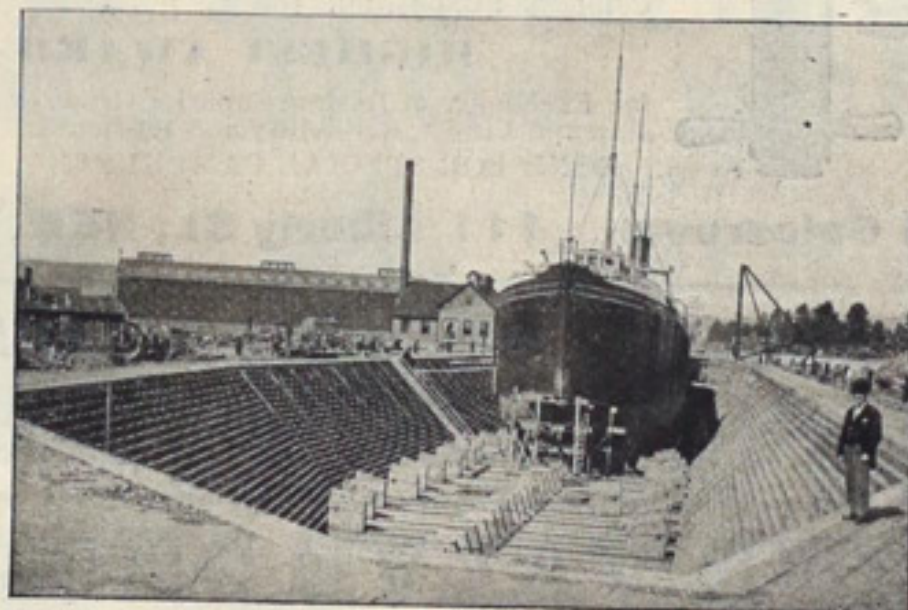
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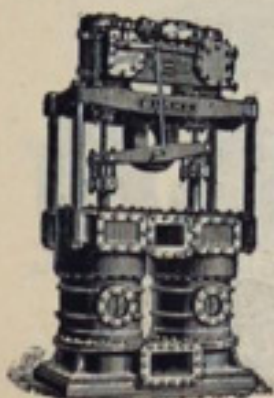
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